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OBSERVATIONS ON THE 1961 SOUTHERN PINE BEETLE EPIDEMIC

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INTRODUCTION

This report is supplementary to previous reports prepared during the present southern pine beetle epidemic which began in 1958.

By May, 1961, this insect was again rampant in southeastern Texas. The size of the infestation area increased from an estimated 200,000 acres reported in 1960 to approximately 600,000 acres. The revised boundaries extended from north of Liberty along Highway 146 to the Schwab City Oil Field; east to Warren; south along Highway 69 to Beaumont; west along Highway 90 to Raywood. Several small spots were observed south of Cleveland.

At the end of 1961 there were an estimated 100,000 active brood trees in the infestation area, based on the number and size of uncontrolled spots. This does not include the large quantity of single brood trees scattered throughout the area.

A total of \$88,487.54 was spent combating this insect in the period from July 1, 1960 to June 30, 1961. A statement of landowner expenditures for 1961 calendar year is given in the Appendix.

DETECTION

The procedure outlined in previous reports has proved satisfactory in locating southern pine beetle infestations. A faster plane was employed this year which reduced the time required to fly over the infestation area.

Aerial Observation

The spots picked up on aerial detection flights during 1961 are tabulated below:

New Spots Discovered From Aerial Observations, 1961

Date of Flight	Spots Observed	Date of Flight	Spots Observed
April 13	12	August 15	67
May 9	63	August 24	43
May 23	114	September 14	40
June 6	57	September 26	65
June 21	119	October 11	42
June 28	71	October 24	36
July 18	111	November 7	29
August 1	73	November 29	1

Total 943

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Prior to the aerial detection flights (January through March), 23 spots were located on ground reconnaissances making a total of 966 infestations recorded by the Texas Forest Service. Flights were not made in December because the color of hardwood foliage obscured new infestations.

The tabulation below shows the increase in total number of new infestations detected on flights and acreage involved for each year of the present epidemic.

Year	Total Spots Detected on Flights	Estimated Acreage Involved
1958	106	60,000
1959	108	200,000
1960	436	200,000
1961	943	600,000

CONTROL

Excessive annual rainfall was partly responsible for delay in control activity again this year. The rainfall for Hardin County was 77.75 inches; 30 percent or 23.25 inches occurred in June and July. There were alternating dry periods that permitted accessibility to the infestations for control purposes. In May and early June control operations could have been underway throughout the area. However, some landowners were just beginning control operations in mid-June at which time the heavy rainfall further postponed control in many areas. Hurricane Carla dumped up to ten inches of rain on the area in mid-September. This situation allowed the beetle population to increase substantially, conditions were good for control operations in early September, late October and November. In the summer several landowners added more crews and continued control on through the winter, when weather permitted.

A list of landowners having southern pine beetle infestations in 1961 and the spots controlled and uncontrolled as of December 31, is presented below.

Owner	Controlled	Uncontrolled
Don Allums	1	0
Alvey Estate	1	1
Anderson Estate	2	2
Angelina County Lbr. Co.	25	0
Atlantic Refining Co.	1	0
Beech Creek Lbr. Co.	1	1
J. O. Carr Estate	1	0
W. T. Carter & Bro. Lbr. Co.	8	2
Champion Papers, Inc.	33	26
Tom Coe	1	0
Coline Oil Co.	4	0
W. W. Cruse Estate	0	3
Wirt Davis Estate	2	1
E. A. & J. M. Dorman	1	0
E. W. Easterling	0	1
C. M. Frost Estate	2	0
J. W. Foley	1	0
General Crude Oil	1	0
W. D. Gordon	1	0
Hart & Bledsoe	2	0
Martin Hughes Estate	0	1

Owner	Controlled	Uncontrolled
Joe Hunt	0	1
International Paper Co.	39	3
G. W. Jones Estate	1	0
Keith Lumber Company	71	29
Kirby Lumber Corp.	318	10
Goerge Kirkpatrick	0	2
Marbann Corp.	21	10
Lillian Marcontel	0	1
Velma Mitchell	0	1
Nona-Mills Co.	21	2
Ben Ogletree	1	0
Pan American Petroleum Co.	2	2
Ben Pope	1	1
R. H. Purswell	0	1
B. E. Quinn Estate	2	2
Racki Lumber Company	0	0
Rice Institute	1	0
J. B. Rivers Estate	0	1
Allan Shivers	1	0
Southern Pine Lumber Co.	4	3
B. V. Spiller	1	0
Southwestern Settlement & Dev. Co.	254	1
Sun Oil Co.	4	0
Taylor Estate	1	0
R. E. Teel	1	0
Texaco Inc.	3	0
M. & P. Verrett	1	0
Clarence Wallace	1	0
Robert Welsh Foundation	1	0
L. L. Williams	8	1
Unknown	0	4
Totals	852	113

The spots that remained uncontrolled as of December 31, will be transferred onto 1962 records.

Southwestern Settlement & Development Company and Kirby Lumber Corporation did an outstanding job in control during the year. Sixty percent of the total number of infestations were on land owned by these two companies but they were responsible for only 10 percent of the spots uncontrolled as of December 31.

On August 3, Art Green, Leroy Williamson and U. S. Forest Service entomologists Bob Thatcher, Dave Ketchum, Henry Galoosha and Mike Jones held a meeting at Texas Forest Service district headquarters in Woodville to discuss plans for a training session on control techniques. Control recommendations were modified by permitting brown topped trees from which the beetles had emerged to remain standing and unsprayed, in an effort to speed up operations.

On August 8-9, the session was conducted by the Texas Forest Service with the assistance of the U. S. Forest Service personnel mentioned above. Company foresters and control-crew foremen were given instruction on technique and revised recommended control procedure. Follow-up training was given to control crews by Texas Forest Service personnel.

Those landowners who followed the recommendation were able to speed up their control operations and improve the quality of work.

Although the Texas Forest Service was prepared to organize control crews it was unnecessary as those employed by landowners and contractors were available to conduct control operations.

Again in 1961 it was unnecessary to invoke the provisions of the law which permits control operations on lands of recalcitrant owners.

Project Personnel

The number of persons employed in detection, control and salvage operations increased this year. Listed below are the number of persons employed in the various categories of work.

1. Aerial detection	4
2. Supervision & Clerical	4
3. Ground checking	18
4. Control	84
5. Salvage operations	80
	<hr/> 190

Volume of Timber Killed

The volume of timber killed during the present epidemic was largest this year. The tabulation below shows the estimated volume of timber killed each year since the beginning of the epidemic in 1958.

	Volume of Timber Killed				
	1958	1959	1960	1961	Total
Sawlogs (M Bd. Ft.)	500	2,500	8,000	17,887	28,887
Pulpwoods (Cords)	-	2,500	8,000	24,000	34,500

An estimated 35 percent of the timber killed in 1961 was salvaged; it consisted of 6,260,450 bd. ft. of sawtimber and 8,400 cords of pulpwood.

SUMMARY

Commencing with 1958, the Southern pine beetle epidemic has done more damage in each succeeding year, continued to grow in size, expressed in number of new infestations and volume of timber killed.

On December 31, 1961, there were 113 known infestations uncontrolled. These will be transferred onto 1962 records. On December 31, 1960 there were 28 spots uncontrolled.

Landowners who have continued control operations on through the winter are to be commended for the job they have done in reducing the number of infestations. To cease control operations now, however, could again allow the insect to build up.

Due to the number of active brood trees remaining December 31, the potential remains for continued spread in 1962 of the beetle.

Control operations should be executed as soon as ground conditions permit in 1962 to reduce further destruction by this pest.

DLW/DY/et
February 12, 1962

LITERATURE CITED

Green, A. E. 1959

Observations During the 1958 Epidemic of Southern Pine Beetle. Unpublished report, Texas Forest Service, District #4, Woodville

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Observations During the 1959 and 1960 Epidemic of the Southern Pine Beetle. Unpublished report, Texas Forest Service, District #4, Woodville.

APPENDIX

Statement of Southern Pine Beetle Expenditures and Reimbursement from
Pest Act Funds - July 1, 1960 - June 30, 1961, incl.

Statement of Southern Pine Beetle Expenditures - January 1, 1961 -
December 31, 1961

Recommended Control Procedure (Revised 8/3/61)

Southern Pine Beetle Project

Southern Pine Beetle Project
STATEMENT OF EXPENDITURES and REFUNDS DUE COOPERATORS
For Period July 1, 1960-June 30, 1961 Incl.

2.336

<u>Cooperators</u>	<u>July-May</u>		<u>June, 1961</u> <u>Expendi-</u> <u>tures</u>	<u>June, 1961</u> <u>30.7087%</u> <u>Refund</u>	<u>Grand</u> <u>Total</u> <u>Expendi-</u> <u>tures</u>	<u>Grand</u> <u>Total</u> <u>Refunds</u>
	<u>Expendi-</u> <u>tures</u>	<u>33 1/3%</u> <u>Refund</u>				
J. J. Allums, Estate	\$	\$	\$ 89.90	\$ 27.61	\$ 89.90	\$ 27.61
Angelina County Lumber Co.	1,587.41	529.14	331.47	101.79	1,918.88	630.93
Net H. Anderson, Estate			167.21	51.35	167.21	51.35
Lawrence Carr	35.00	11.66			35.00	11.66
The Champion Paper & Fiber Co.	4,025.15	1,341.72	226.35	69.51	4,251.50	1,411.23
B. E. Quinn Estate	476.00	158.67	273.00	33.33	749.00	242.50
International Paper Co.	11,464.37	3,821.46	731.13	224.54	12,195.55	4,046.00
The Keith Co.	6,408.83	2,136.27	1,497.62	459.90	7,906.45	2,596.17
Kirby Lumber Corp.	9,330.41	3,110.13	5,803.06	1,782.04	15,133.47	4,892.17
George P. Kirkpatrick	416.72	138.91			416.72	138.91
Marbenn Corp.	8,271.89	2,757.29	1,860.38	571.30	10,132.27	3,328.59
Monroe Lumber Co.	600.00	200.00			600.00	200.00
P. A. Racki Lumber Co.	609.77	203.26	1,303.77	400.37	1,913.54	603.63
Southern Pine Lumber Co.	531.05	193.68	330.50	101.49	911.55	295.17
Southwestern S. & D. Co.	19,253.52	6,417.83	5,784.57	1,776.37	25,038.09	8,194.20
L. Williams	<u>1,277.38</u>	<u>425.79</u>			<u>1,277.38</u>	<u>425.79</u>
Sub-Total	64,337.50	21,445.81	18,399.01	5,650.10	82,736.51	27,095.91
Texas Forest Service	<u>5,258.56</u>	<u>1,752.86</u>	<u>492.47</u>	<u>151.23</u>	<u>5,751.03</u>	<u>1,904.09</u>
RAND TOTAL	\$69,596.06	\$23,198.67	\$18,891.48	\$ 5,801.33	\$83,487.54	\$29,000.00
N/ma						

Statement of Expenditures*Southern Pine Beetle Project
For Period January 1, 1961-December 31, 1961

Don Allums	\$ 89.90
Mrs. Nettie Anderson	167.21
Angelina County Lbr. Co.	3,194.62
W. T. Carter & Bro.	3,503.89
Champion Papers, Inc.	18,654.03
Thomas Coe	21.00
Wirt Davis Estate	1,822.49
E. A. & J. M. Dorman	23.08
J. W. Foley	337.00
General Crude Oil	260.00
W. D. Gordon Estate	70.55
International Paper Co.	19,800.97
Jones Estate	309.51
Keith Company	12,265.35
Kirby Lumber Corp.	29,969.52
Marbann Corp.	11,656.79
Nona Mills	1,255.20
Ogletree Lbr. Co.	858.20
Ben S. Pope	130.00
B. E. Quinn Estate	1,139.00
Racki Lumber Co.	8,080.14
Rice Institute	128.75
Allan Shivers	65.00
Southern Pine Lbr. Co.	1,896.59
Spiller Estate	164.50
Southwestern Settlement & Development Co.	59,486.50
Texaco Inc.	522.00
M & P Verratt	22.35
Welsh Foundation	260.00
L. L. Williams	<u>1,969.49</u>
 Texas Forest Service	 8,399.94
 Total	 \$186,573.57

* Others conducted control operations but submitted no statement of expenditures to claim reimbursement from Pest Act Funds.

DY/et
January 30, 1962

TEXAS FOREST SERVICE
Recommendations for Cutting and Spraying of Trees
Infested by Southern Pine Beetle

1. Suggested Crew Organization:

A three-man crew is best with one man operating the power saw, one-spraying and the third turning logs to be sprayed. One man should be in charge and mark infested trees.

2. Recommended Chemical Treatment:

The best chemical is a mixture of No. 2 fuel oil and 11% Benzene Hexachloride (BHC). The correct mixture is one(1) gallon of BHC to forty (40) gallons of oil. (It takes approximately $1\frac{1}{2}$ gallons of mixed solution to spray an average size tree).

3. Equipment needed:

- 1 - Power saw or other type of felling saw
- 1 - Axe
- 1 - Cant hook
- 1 - Sprayer, garden type pressure, preferable stainless steel or brass with neoprene hose, brass wand and nozzle. The chemical will soon eat out other types of containers and hoses. Spare parts for sprayer are essential.

4. Steps to be followed in treating the infested trees:

- a. Fell trees and cut into lengths that can be easily treated.
- b. Spray all infested portions of the tree including the stump. The BHC solution should be applied until the bark is soaked and there is some run-off. After the top surface of the trunk is sprayed, the log should be turned and the other areas sprayed. It is especially important that all surfaces be sprayed.
- c. Each tree should be treated before felling another tree across it.

d. Keep spray nozzle about one foot from the bark surface.

e. All trees cut should be sprayed before leaving the job for the day. Unsprayed trees might be forgotten and allow beetles to escape and attack other trees.

f. If the infested logs are to be salvaged and utilized immediately, no spraying is necessary. All remaining infested material should be sprayed.

g. If the material is to be salvaged but not utilized immediately this and other infested material should be sprayed.

h. After control has been completed, a strip about 100 yards wide should be scouted for additional infested trees.

i. CAUTION - BHC IS POISONOUS TO HUMANS. Keep it off your skin and away from your eyes and nose. Wash carefully with soap and warm water after mixing or applying spray.

5. The following is available from the Texas Forest Service at Woodville:

a. On-the-ground training of crews in insect identification and control technique.

b. Information on sources of supplies and materials.

c. Mixed solution of BHC and diesel oil at a cost of 13¢ per gallon plus deposit on drum.

DLW/vb
8/3/61